

**Listing of Claims:**

Claims 1-16 (canceled).

Claim 17 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending partially therethrough, each of said reaction wells having a closed lower end defined by the base and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

a flow restriction device positioned adjacent to said open ends of the reaction wells and comprising a plurality of flow passageways formed therein, each of said plurality of flow passageways configured to provide a direct fluid communication path between one of said plurality of reaction wells and said pressure chamber while reducing cross-talk between said plurality of reaction wells;

wherein the material and structure of the pressure chamber is such that the chamber is operable to sustain an operating pressure of at least 30 psig.

Claim 18 (canceled).

Claim 19 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending partially therethrough, each of said reaction wells having a

closed lower end defined by the base and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells; and

a flow restriction device positioned adjacent to said open ends of the reaction wells to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells, the flow restriction device comprising a plurality of flow passageways formed therein and aligned with said plurality of reaction wells, each of said flow passageways having a diameter substantially smaller than a diameter of the aligned reaction well; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claim 20 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending at least partially therethrough;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

a flow restriction device comprising a plurality of check valves aligned with the reaction wells and configured to allow flow into the reaction wells and restrict flow from the reaction wells into said chamber to provide a flow passage between said

plurality of reaction wells and said pressure chamber while reducing cross-talk between the reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claim 21 (original): The apparatus of claim 17 wherein the flow restriction device comprises a rigid member.

Claim 22 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells formed in an upper surface of the base and extending partially therethrough, each of said reaction wells having a closed lower end defined by the base and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

an elastomeric sheet positioned adjacent to said open ends of the reaction wells and comprising a plurality of flow passageways formed therein, each of said plurality of flow passageways configured to provide a direct fluid communication path between one of said plurality of reaction wells and said pressure chamber while reducing cross-talk between said plurality of reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claim 23 (original): The apparatus of claim 17 wherein the flow restriction device comprises a porous sheet.

Claim 24 (original): The apparatus of claim 17 wherein the flow restriction device is removably attached to the base member with fastening means.

Claim 25 (previously presented): The apparatus of claim 17 wherein each of said plurality of reaction wells comprises a vial for receiving components for the reaction.

Claim 26 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

- a base having a plurality of reaction wells;

- a plurality of vials inserted into said plurality of reaction wells for receiving reaction components, each of said plurality of vials having a closed lower end and an open upper end for receiving components for the reaction;

- a plurality of springs disposed at the bottom of the reaction wells for biasing the vials upward against the flow restriction device;

- a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

- an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

- a flow restriction device comprising a plurality of flow passageways formed therein, each of said plurality of flow passageways configured to provide a fluid communication path between one of said plurality of reaction wells and said pressure chamber while reducing cross-talk between said plurality of reaction wells;

wherein the housing is configured to sustain a pressure substantially above atmospheric pressure.

Claims 27-30 (canceled).

Claim 31 (withdrawn): An apparatus for use in parallel synthesis or screening of materials, comprising:

a housing sized for receiving a microtiter plate comprising a plurality of reaction wells for receiving components of the synthesis or screening;

a cover movable between an open position for receiving the microtiter plate within the housing and a closed position in which the housing and the cover form a pressure chamber;

an inlet port in communication with said pressure chamber for supplying fluid pressurized substantially above atmospheric pressure to said pressure chamber to simultaneously pressurize each of the reaction wells from an external pressure source; and

a quick-operating fastening device operable to position the cover in its closed position and hold the cover in sealing engagement with the pressure chamber.

Claim 32 (withdrawn): The apparatus of claim 31 wherein said quick-operating fastening device is a four bar mechanism.

Claim 33 (withdrawn): The apparatus of claim 31 further comprising a flow restriction device positioned adjacent to open ends of the reaction wells to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells.

Claim 34 (withdrawn): The apparatus of claim 33 wherein the flow restriction device comprises a plurality of vent holes formed therein and aligned with said plurality of reaction wells.

Claim 35 (withdrawn): The apparatus of claim 33 wherein the flow restriction device comprises a plurality of flow passageways formed therein and aligned with said plurality of reaction wells, each of said flow passageways having a diameter substantially smaller than a diameter of the aligned reaction well.

Claim 36 (withdrawn): An apparatus for use in parallel synthesis or screening of materials, comprising:

- a housing sized for receiving a microtiter plate comprising a plurality of reaction wells for receiving components of the synthesis or screening;

- a cover movable between an open position for receiving the microtiter plate within the housing and a closed position in which the housing and the cover form a pressure chamber;

- an inlet port in communication with said pressure chamber for supplying fluid pressurized substantially above atmospheric pressure to said pressure chamber to pressurize each of the reaction wells from an external pressure source;

- a flow restriction device comprising a plurality of check valves aligned with the reaction wells and configured to allow flow into the reaction wells and restrict flow from the reaction wells into said chamber to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

- a quick-operating fastening device operable to position the cover in its closed position and hold the cover in sealing engagement with the pressure chamber.

Claim 37 (withdrawn): The apparatus of claim 31 further comprising a plurality of vials inserted into said plurality of reaction wells for receiving the synthesis or screening materials.

Claim 38 (withdrawn): A method for reacting a plurality of materials in parallel within a reactor vessel having a plurality of reaction wells formed therein each having an open end exposed to a common pressure chamber defined by the reactor vessel, the method comprising:

- opening a cover of the reactor vessel;
- inserting components into the reaction wells;
- closing the cover of the reactor vessel to create a sealed chamber;
- supplying a gas substantially above atmospheric pressure that reacts with the components within the reaction wells; and
- releasing pressure from the reactor vessel.

Claim 39 (withdrawn): The method of claim 38 wherein supplying a pressurized gas comprises supplying a gas at above 10 psig.

Claim 40 (withdrawn): The method of claim 38 wherein supplying a pressurized gas comprises supplying a gas at below 1000 psig.

Claim 41 (withdrawn): The method of claim 38 further comprising covering a portion of the open ends of the reaction wells to reduce vapor phase cross-talk between the reaction wells.

Claim 42 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

a flow restriction device positioned adjacent to said open ends of the reaction wells and comprising flow passageways formed therein to provide direct fluid communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells;

wherein material and structure of the pressure chamber is such that the chamber is operable to sustain an operating pressure of at least 40 psig.

Claim 43 (original): The apparatus of claim 42 wherein the flow restriction device comprises a rigid member.

Claim 44 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

a cover defining a common pressure chamber in communication with said plurality of reaction wells;

an elastomeric sheet positioned adjacent to said open ends of the reaction wells and comprising flow passageways formed therein to provide direct fluid



communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claim 45 (original): The apparatus of claim 42 wherein the flow restriction device comprises a porous sheet.

Claim 46 (original): The apparatus of claim 42 wherein the flow restriction device comprises a plurality of vent holes formed therein and aligned with said plurality of reaction wells.

Claim 47 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

a flow restriction device positioned adjacent to said open ends of the reaction wells to provide communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; the flow restriction device comprising a plurality of flow passageways formed therein and aligned with said plurality of reaction wells, each of said flow passageways having a diameter substantially smaller than a diameter of the aligned reaction well; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claim 48 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

- a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

- a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

- a flow restriction device comprising a plurality of check valves aligned with the reaction wells and configured to allow flow into the reaction wells and restrict flow from the reaction wells into said chamber to provide fluid communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

- an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claim 49 (previously presented): The apparatus of claim 42 wherein each of said plurality of reaction wells comprises a vial for receiving components for the reaction.

Claim 50 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

- a base having a plurality of reaction wells;

- a plurality of vials inserted into said plurality of reaction wells, each of said plurality of vials having a closed lower end and an open upper end for receiving reaction components;

- a plurality of springs disposed at the bottom of the reaction wells for biasing the vials upward against the flow restriction device;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

a flow restriction device positioned adjacent to said open ends of the reaction wells and comprising flow passageways formed therein to provide fluid communication between the reaction wells and said pressure chamber while reducing cross-talk between the reaction wells; and

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.

Claims 51-53 (canceled).

Claim 54 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

a base comprising a plurality of reaction wells each having a closed lower end and an open upper end for receiving components for the reaction;

a cover configured for sealing engagement with the base to form a housing enclosing said plurality of reaction wells and defining a common pressure chamber in communication with said plurality of reaction wells;

an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells; and

a flow restriction device comprising a plurality of flow passageways formed therein to provide fluid communication paths between said plurality of reaction wells and said pressure chamber while reducing cross-talk between said plurality of reaction wells;

wherein said plurality of flow passageways provide the only fluid communication path between said plurality of reaction wells and said pressure chamber;

and material and structure of the pressure chamber is such that the chamber is operable to sustain an operating pressure of at least 40 psig.

Claim 55 (previously presented): The apparatus of claim 20 wherein the flow restriction device is positioned adjacent to said open ends of the reaction wells.

Claim 56 (previously presented): An apparatus for use in parallel reaction of materials, comprising:

- a base having a plurality of reaction wells, each of said reaction wells having a closed lower end and an open upper end for receiving components for the reaction;

- a cover defining a common pressure chamber in communication with said plurality of reaction wells;

- a flow restriction device comprising a plurality of check valves configured to allow flow into the reaction wells and restrict flow from the reaction wells to provide fluid communication between the reaction wells and said pressure chamber while reducing cross-talk between at least some of said plurality of reaction wells; and

- an inlet port in communication with said pressure chamber for supplying pressurized fluid to said chamber to pressurize said plurality of reaction wells.